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| 10/538,492 | 06/09/2005 | Koji Matsumoto | 0020-5382PUS1 | 7092 |
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| EXAMINER SULTANA, NAHIDA | | | | |
| ART UNIT 4151 | | PAPER NUMBER | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/538,492

Applicant(s)

MATSUMOTO ET AL.

Examiner

NAHIDA SULTANA

Art Unit

4151

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/88)
Paper No(s)/Mail Date 06/09/2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isozaki et al (US Publication No. 2004/0089960 A1) in view of Matsumoto et al. (JP Publication No. 2001-311827).

Regarding claim 1, Isozaki et al teach:

A method for producing a polarizing film ("process for producing polarizing film" see abstract): comprising the step of supplying a polyvinyl alcohol film in/on which iodine is adsorbed and oriented in an aqueous solution containing boric acid and dipping and treating said polyvinyl alcohol film with said aqueous solution ("the invention provides a continuous method for producing polarizing film that includes step of monoaxially stretching a polyvinyl alcohol film having a width of at least 2 m in an aqueous boric acid solution, wherein the polyvinyl alcohol film is stretched on the condition that it satisfies the following formula 1 and 2", see abstract).

However, Isozaki et al. do not teach wherein an absorbance of said aqueous solution at a wavelength of 450 nm is maintained in a range of 0.13.

In the same field of endeavor, polarizing plate and its manufacturing method, Matsumoto et al. teach an absorbance of said aqueous solution at a wavelength of 450 nm and absorbance ("to provide a polarizing plate capable of displaying more neutral gray white and black with high contrast and further to provide a method for manufacturing the same...Solution: the polarizing plate comprising a polarizing film of which one of the surface is laminated with protective film through an adhesive layer, having $\geq 40\%$ single body transmittance, having a^* and b^* of perpendicular hue measured by JIS Z 8729 in $-5.0 \leq a^* \leq 10$ and $-10 \leq b^* \leq 1.0$ ranges respectively, having a^* and b^* of parallel hue in $-4.0 \leq a^* \leq 4.0$ and $-1.0 \leq b^* \leq 5.5$ ranges respectively and further having either of the layers comprising it having an absorption spectrum satisfying relations $0 \leq A/D \leq 0.3$, $0.1 \leq B/D \leq 0.7$, $0.5 \leq C/D \leq 1.4$ and $0 \leq E/D \leq 0.5$ where absorbance at 450 nm, 500 nm, 550 nm, 600 nm and 650 nm are denoted as A, B, C, D and E respectively and the method for manufacturing it are provided" see abstract).

Thus, it would have been obvious to one ordinary skill in the art at the time of applicant's invention to combine the process for producing polarizing film of Isozaki et al. with having absorbance of said aqueous solution at a wavelength of 450 nm is maintained in a range of 0.13., of Matsumoto et al., for the benefit of having polarizing film which exhibits higher light transmittance and higher degree of polarization, that is better contrast for liquid crystal displays than dyestuff type polarizing film. Furthermore, it would have been obvious to one ordinary skill in the art at the time of invention where absorbance of the aqueous solution containing is able to be decreased by physical

methods, chemical methods, and electrochemical methods and therefore one would have been motivated to maintain a wavelength in desire ranges.

In regards to claim 2, examiner wishes to point out that recycling boric acid is well known in the art for the purpose of saving boric acid and would have been obvious to include for this purpose. Furthermore, regarding wherein said aqueous solution containing boric acid is recycled while maintaining the absorbance of the aqueous solution at a wavelength of 450 nm in a range of 0.13 or less, note that the wavelength 450 nm and range are taught in the prior art, Matsumoto et al. teach wavelength of 450 (see abstract).

Regarding claim 3, Isozaki et al. do not teach wherein the absorbance of said aqueous solution containing boric acid at a wavelength of 450 nm is maintained in a range of 0.13 or less by continuously or intermittently treating said aqueous solution with activated carbon.

However, in the same field of endeavor, polarizing plate and its manufacturing method, Matsumoto et al. teach an absorbance of said aqueous solution at a wavelength of 450 ("When carrying out after dyeing uniaxial stretching may be performed before boric acid processing, and may be performed during boric acid processing. It is also possible to perform uniaxial stretching in two or more stages of course among these. Rinsing treatment of the polyvinyl—alcohol—resin film after boric acid processing.."; see Paragraph 0014-0015; "each absorbance A, B, and C, D, and E at the wavelength of 450nm, 500 nm. And 650 nm and the ratio of E to the absorbance

D in the wavelength 600, i.e., relative absorbance are to have made it satisfy a specific relation.”; Paragraph 0018) .

Thus, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to combine the process for producing polarizing film of Isozaki et al. with having absorbance of said aqueous solution at a wavelength of 450 nm maintained in a range of 0.13 and treating with activated carbon of the acid for the benefit above.

Regarding claim 5, Isozaki et al. further teach the time limit, wherein a temperature of aid said aqueous solution containing boric acid is from 55°C to 85°C, and a dipping time is from 90 seconds to 1,200 seconds (“boric acid concentration of 40 g/l and zinc chloride concentration 10 g/l, at 30 °C for five minutes. With that the film was taken out and dried”; Paragraph 0056).

Regarding claim 6, Isozaki et al. further teach wherein said polyvinyl alcohol has a polymerization degree of 1,500 to 5,000 (“wherein the polyvinyl alcohol has a degree of polymerization of at least 1500”; Paragraph 0063).

Regarding claim 7, Isozaki et al. further teach:

wherein said polyvinyl alcohol film in/on which iodine is adsorbed and oriented is a film produced by uniaxially stretching an unstretched polyvinyl alcohol film in water and then dipping it in a solution containing iodine and potassium iodide (“monoaxially stretching” and “water at 30o C for 30 seconds , and dipped in a solution of iodine/potassium iodine having a concentration ratio of 1/100, at 35oC for 3 minutes”; Paragraph 0056), a film produced by dipping an unstretched polyvinyl alcohol film in a

solution containing iodine and potassium iodide and then uniaxially stretching it ("thus obtained the polarizing film had a transmittance of 43.5%, a degree of polarization of 99.99%, and a dichoric ratio of 55. Its polarizing properties were extremely good" ; Paragraph— 0057) a film produced by uniaxially stretching an unstretched polyvinyl alcohol film in a solution containing iodine and potassium iodide, a film produced by uniaxially stretching an unstretched polyvinyl alcohol film in a plurality of dipping steps "dipped into water" and "dipped into solution" see Paragraph—0056) , or a film produced by uniaxially stretching an unstretched polyvinyl alcohol film in a dry state and then dipping it in a solution containing iodine and potassium iodide ("with that, the film was taken, dries in hot air at 40oC and then heat heated at 100oC. The ratio of stretching distance (A)/ stretched film speed (B) was 1.0 minute; and the ratio of stretching distance (A)/stretched film width (C) was 4" Paragraph—0056)

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isozaki et al (US Publication No. 2004/0089960 A1) in view of Matsumoto et al. (JP Publication No. 2001-311827) as applied to claim 1 above, and further in view of Tsuchimoto et al. (US Pub No. 2003/0197939 A1).

As previously mentioned, Isozaki et al. and Matsumoto teach method of making polarizing film with respect to having dipping polyvinyl alcohol film into aqueous boric acid at specific temperature, concentration (including water, potassium iodide and boric acid), and time (See examples 1-4, Paragraph 0050-0056, Isozaki), however fails to teach at this specific ratios in the concentration wherein a weight ratio of water: boric

acid: potassium iodide in said aqueous solution containing boric acid is usually 100:(2-15):(2-20).

In the same field of endeavor, polarizing film and process for producing it, polarizing plate and optical element, Tsuchimoto et al. teach similar range of concentration ("it is preferable in the process that the iodine containing aqueous solution contains iodine in a range from 0.01 to 0.5 weights parts and potassium iodide in a range from 0.05 to 50 weight parts for 100 weight parts of water at a temperature from 10 °C to 80 °C."; Paragraph 0011).

Thus, it would have been obvious to one ordinary skill in the art at the time of applicant's invention to combine the process of the previous art combination for producing polarizing film, with respect to similar ratios where "water: boric acid: potassium iodide in said aqueous solution containing boric acid is usually being 100:(2-15):(2-20)" as set forth in Tsuchimoto et al., for the benefit of having a desired concentration where polarizing film which exhibits a high contrast.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NAHIDA SULTANA whose telephone number is (571)270-1925. The examiner can normally be reached on Mon- Fri 7:30 Am - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on 517-270-1206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NS

***/Angela Ortiz/
Supervisory Patent Examiner, Art Unit 4151***